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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/754,841	01/03/2001	Michael Gerhard	(Z) 98027 P US	7441

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M. Robert Kestenbaum
11011 Bermuda Dunes NE
Albuquerque, NM 87111

EXAMINER

FERNANDEZ, KALIMAH

ART UNIT	PAPER NUMBER
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2881

DATE MAILED: 07/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/754,841

Applicant(s)

GERHARD ET AL.

Examiner

Kalimah Fernandez

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in 7-8-1998 on Germany. It is noted, however, that applicant has not filed a certified copy of the German application as required by 35 U.S.C. 119(b).

Claim Objections

1. Claims 18- 20 are objected to because of the following informalities: the dependence upon claims 9 and 10 is improper since claims 9 and 10 recites a process step and not a microlithographic projection exposure device. Similarly, claims 12- Appropriate correction is required.
2. It is assumed that claims 18 -20 should be properly dependent from claim 11, which recites a microlithographic projection exposure device.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Regarding claim 1, the phrase "especially" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

4. As per claim 19, the recitation of "said UV light source" renders the claim indefinite since it is unclear which UV light source is intended since two UV sources are recited.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat No 6,038,015 issued to Kawata and in view of US Pat No 5,917,604 issued to Dirksen et al.

3. Kawata teaches the removal of contamination from the mask of a lithographic system (see abstract).
4. Kawata teaches directing a UV light source onto at least a portion of said optical element (4).
5. Kawata teaches the performance of contamination inspection and cleaning in intervals between exposures, since inspection, cleaning and projection is performed in a single chamber (col.1, lines 62-67; col.3, lines 37-50).
6. Kawata teaches the claimed invention except that electron beam source instead of a UV light source. Dirksen et al shows that UV light sources and electron sources are equivalents in projection lithography systems (see col.5, lines 8-21; lines 51-57). Therefore, because these two sources were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute a UV projection source for an electron projection sources as suggested by Dirksen et al.
7. As per claim 3, Kawata teaches a flow of said fluid directed parallel to said surfaces of optical elements to be cleaned (col.5, lines 20-23).

8. As per claim 11, Dirksen et al teaches the common use of DUV (col.5, lines 51-57).
9. As per claim 12, Kawata teaches at least one gas supply device for supply of flushing gas when said second UV light source is switched in (col.5, lines 20-36).
10. Claims 5,8-10,14-15 and17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawata and Dirksen et al as applied to claims 1 and 9 above, and further in view of US Pat No 4,980,536 issued to Asch et al.
11. The obvious combination of Kawata and Dirksen et al teaches the claimed invention except for the combination of laser cleaning and ozone cleaning in one apparatus.
12. However, Kawata teaches a first embodiment utilizing a laser and alternatively a second embodiment using ozone (see col.2, lines 12-26).
13. It would have been obvious to an ordinary artisan to combine the embodiments of Kawata at the time the invention was made since Kawata discloses the advantage of permitting wide area cleaning using the ozone.
14. Therefore, an ordinary artisan would have obvious motivation to combine the embodiments to facilitate both fine cleaning via laser and wide

area cleaning via ozone. Moreover, Asch et al illustrates that at the time the invention made it was known that laser cleaning could be done without the use of water vapor (col.1, lines 48-56).

15. As per claims 5, 8,14-15 and 17, Kawata discloses an ozone conduit (32) which deflects the gas in a direction toward surfaces of the optical elements to be cleaned (col.5, lines 62-67) and a mechanical vanes/valve for gas flow diversion (col.6, lines 1-4). In regards to claim 17, Kawata discloses the control of the ozone via valve (33) (col.5, lines 65-66).

16. As per claim 10, Kawata teaches the use of oxygen (col.6, lines 25-28).

17. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawata and Dirksen et al as applied to claim 1 above, and further in view of US Pat No 4,337,437 issued to Hunter et al.

18. The obvious combination of Kawata and Dirksen et al teaches the claimed invention except neither Kawata nor Dirksen et al explicitly teach a broad band laser source with a bandwidth of about 500 nm.

19. However, Hunter et al teaches a KrF broad band laser having a 500 nm bandwidth (col.2, lines 25-30) and Kawata teaches a KrF excimer (col.6, lines 49-53).

20. It would have been obvious to an ordinary artisan to combine the teachings of Hunter into the obvious combination of Kawata and Dirksen et al since it is widely known as illustrated by Hunter that KrF laser are in fact broad- band with bandwidths of about 500 nm.

21. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawata and Dirksen et al as applied to claims 1 and 11 above, and further in view of US Pat No 4,149,086 issued to Nath.

22. The obvious combination of Kawata and Dirksen et al teaches the claimed invention except neither Kawata nor Dirksen et al teach an ellipsoidal reflector and a light guide.

23. However, Nath teaches a UV light source having an ellipsoidal reflector and a light guide (col.7, lines 28-30, lines 59-60).

24. It would have been obvious to an ordinary artisan to incorporate the teachings of Nath into the obvious combination of Kawata and Dirksen et al since Nath teaches the advantage of improved manipulation capability (col.2, lines 54-60).

Allowable Subject Matter

25. Claims 4,6-7,13,16 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

26. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to teach or obviously suggest the claimed invention.

27. Specifically, the teaching or obvious suggestion was found of branching off as recited in claim 4; production of cross-flow by inhomogeneous magnetic or electric field as in claim 6 and 16; the use of fluids with different densities alternatively for flushing as in claim 7; and said optical element having a rod-shaped light guide as in claim 20.

Conclusion

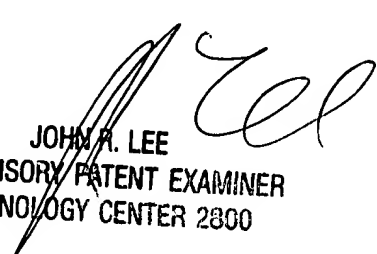
The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US Pat No 4,606,747 issued to Steinhoff; US Pat No 5,938,860 issued to Williams; US Pat No 5,955,242

issued to Aviram et al (i.e. illustrates the general knowledge in the art regarding equivalency of electron and UV lithography);US Pat No 6,017,397 issued to Doran; and US Pat NO 5,814,156 issued to Elliott et al.Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kalimah Fernandez whose telephone number is 703-305-6310. The examiner can normally be reached on Mon-Thus between 8:30am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Lee can be reached on 703-308-4116. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

kf
June 27, 2003


JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800